

**GYANMANJARI INSTITUTE OF TECHNOLOGY**

**MECHANICAL ENGINEERING DEPARTMENT**

**SYLLABUS FOR MID-TERM EXAM**

**1<sup>st</sup> SEM (Mechanical and Civil) A.Y 2015-16 ODD**

**SUBJECT: ELEMENTS OF MECHANICAL ENGINEERING (211006)**

**10/08/2015**

<b>Unit No.</b>	<b>Topics</b>	<b>% Weightage</b>
<b>1</b>	<b>INTRODUCTION</b> Prime movers and its types, Concept of Force, Pressure, Energy, Work, Power, System, Heat, Temperature, Specific heat capacity, Change of state, Path, Process, Cycle, Internal energy, Enthalpy, Statements of Zeroth Law and First law	<b>20%</b>
<b>3</b>	<b>PROPERTIES OF GASES</b> Gas laws, Boyle's law, Charle's law, Combined gas law, Gas constant, Relation between Cp and Cv, Various non-flow processes like constant volume process, constant pressure process, Isothermal process, Adiabatic process, Poly-tropic process	
<b>4</b>	<b>PROPERTIES OF STEAM</b> Steam formation, Types of Steam, Enthalpy, Specific volume, Internal energy and dryness fraction of steam, use of Steam tables, steam calorimeters	<b>30%</b>
<b>5</b>	<b>HEAT ENGINES</b> Heat Engine cycle and Heat Engine, working substances, Classification of heat engines, Description and thermal efficiency of Carnot; Rankin; Otto cycle and Diesel cycles	
<b>6</b>	<b>STEAM BOILERS</b> Introduction, Classification, Cochran, Lancashire and Babcock and Wilcox boiler, functioning of different mountings and accessories	<b>10%</b>
<b>7</b>	<b>INTERNAL COMBUSTION ENGINES</b> Introduction, Classification, Engine details, four-stroke/ two-stroke cycle Petrol/Diesel engines, Indicated power, Brake Power, Efficiencies	<b>10%</b>

Prof. Krunal Khiraiya  
Course coordinator

HOD